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ABSTRACT

Changing a health behavior and maintaining a positive change can be very difficult. This study examined attributions for health behavior change by using retrospective reports to elicit college students' (N=466) current views of successes and failures at adopting health promoting behaviors. In completing the Health Behavior Questionnaire, 229 subjects provided details of a successful attempt to change a health behavior and 237 subjects provided details on an unsuccessful attempt. Subjects freely generated their own causal ascriptions and used the Causal Dimension Scale to locate their attributions on the dimensions of locus, stability, and controllability. Causal dimension scores indicated that the average attribution was internal, unstable, and controllable and that success attributions were more stable and controllable than were failure attributions. This suggests a tendency to make attributions that enhance perceived control over health behavior outcomes. A self-serving attributional bias was observed for reports involving exercise and substance use, but not for eating. Successful road safety habit changes were more external, more stable, and less controllable than were unsuccessful changes. Stable attributions were associated with expectations that previous outcomes would continue into the future. (Author/NB)

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Attributions for Successful and Unsuccessful Health Behavior Change

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RUNNING HEAD: Attributions for Health Behavior Change

Paper presented at the meeting of the American Psychological Association,

August 1987, New York, NY

Abstract

We investigated 466 undergraduates' attributions for successful and unsuccessful health behavior change using a retrospective incident report questionnaire. Causal dimension scores indicated that the average attribution was internal, unstable and controllable and that success attributions were more stable and controllable than failure attributions. This suggests a tendency to make attributions that enhance perceived control over health behavior outcomes. We also noted a self-serving attributional bias for reports involving exercise and substance use, but not for eating; furthermore, successful road safety habit changes were more external, more stable and less controllable than unsuccessful changes. Stable attributions were associated with expectations that previous outcomes would continue into the future.

Attributions for Successful and Unsuccessful Health Behavior Change

Changing a health behavior can be difficult; maintaining a positive change can be downright Sisyphean (e.g., Marlatt, 1985). Psychologists therefore try to determine, in the aftermath of attempts to adopt health promoting behaviors, the variables that will predict if success will be sustained and failure reversed. Many current models of health behavior change present cognitions as the crucial variables (Gatchel & Baum, 1983; Taylor, 1986).

But which cognitions are best worth investigating? Weiner's (1985) attributional theory of motivation states that the type of cause that a person identifies for an outcome will determine his or her emotional experience, behavioral persistence, and future outcomes. The theory has been well supported and successfully applied in a variety of achievement

and interpersonal contexts (Fiske & Taylor, 1984; Weiner, 1985); it should thus be helpful in understanding and, perhaps, influencing everyday attempts to adopt health promoting behaviors.

This investigation was a first look at attributions for health behavior change attempts. It used retrospective reports (Folkes, 1982; Schoeneman, van Uchelen, Stonebrink & Cheek, 1986; Weiner, Russell & Lerman, 1979) to elicit college students' current views of successes and failures at adopting health promoting behaviors. Consistent with recent recommendations (Weiner, 1983), subjects freely generated their own causal ascriptions and used a standardized measure, the Causal Dimension Scale (Russell, 1982), to locate their attributions on the dimensions of locus (internal vs. external), stability (stable vs. variable over time) and controllability (controllable vs. uncontrollable by self or others).

Our research had three purposes. First, we wanted to see if previously observed attributional tendencies would emerge in the area of health behavior change: Subjects could display the well-known self-serving bias (Weary Bradley, 1979) by attributing success to internal and failure to

external causes, or they could show a preference for personal changeability of causes (Anderson, 1983; Schoeneman et al., 1986) by ascribing both success and failure to internal, controllable causes, with emphasis on stable causes for success and variable causes for failure. Our second aim was to see if observed trends applied equally for a variety of health behaviors; we thus compared attributions for attempts to change eating, substance use, exercise and road safety habits. Finally, we tested predictions from Weiner's (1985) theory: Stable attributions should be associated with expectations that previous success or failure will continue.

Method

Our sample consisted of 466 undergraduates (207 females, 228 males, 31 unknown; average age = 19.7) from introductory psychology courses at the University of Washington. Participants completed the Health Behavior Questionnaire (HBQ) in large group sessions.

On its first page, the HBQ asked for details of either a successful (n = 229) or an unsuccessful (n = 237) attempt to change a health behavior. The second page presented a checklist of 23 health behaviors (see Table 1) and

asked subjects to "place a check mark next to one or more behaviors which you have tried, successfully (unsuccessfully), to change;" a successful change was described as lasting one month or longer. Subjects next selected one of the checked items as the focus for the remainder of the HBQ and told how long ago they had made the attempt, how many prior attempts they had made, how long the change lasted, and how important it was to succeed (1 = not at all, 9 = extremely).

The next section of the HBQ asked subjects to "think back again to the time when you felt you had succeeded (failed) at the attempted change. What cause for your success (failure) occurred to you? If you think there was more than one cause, write down the major cause." Subjects then rated the attribution using the Causal Dimension Scale (Russell, 1982), which contains three 9-point items each for the causal dimensions of locus, stability and controllability.

Finally, successful subjects were asked if they had maintained the desired behavior and those who said "yes" rated the likelihood that they would be maintaining the change during the next three months; similarly,

unsuccessful subjects were asked if they had made any subsequent change attempts and those who had not rated the likelihood that they would accomplish the behavior change during the next three months (for both scales: 1 = very unlikely, 9 = very likely).

Insert Table 1 about here

Results

In order to diminish the chances of Type I error due to multiple analyses, we adopted a .01 significance level. Note that ns and dfs vary because a few subjects did not answer all items.

Characteristics of Health Behavior Change Attempts

Table 1 shows how often subjects reported successful or unsuccessful past attempts to change 23 health behaviors. Overall, the most frequently cited change attempts involved jogging regularly (239), wearing seat belts (217), dental flossing (196), reducing sugar intake (190), and dieting to lose weight (163). Table 1 also shows how many subjects selected each of the

23 categories as the focus of their HBQ report. The most popular foci were jogging (91), dieting (75), wearing seat belts (57), exercise other than jogging, swimming or walking (42), and reducing sugar (31).

Eighty-one subjects indicated that their change attempt had occurred an indefinite "long time" ago; the rest (n = 360) reported a median of 12 months. Changes were sustained for about 3 months (mdn = 90 days). When asked how many prior attempts they had made, three said "a few", 31 said "many" and 56 did not answer; the rest disclosed, on average, two or three prior attempts (M = 2.2, mdn = 1). Subjects reporting success mentioned fewer prior attempts (M = 1.3) than those reporting failure (M = 3.3), t (374) = -4.34, $p < .001$. The average personal importance of the reported change attempt was 6.2, that is, modestly important on a scale of 1 to 9; subjects rated attempts that succeeded as more important (M = 6.8) than those that failed (M = 5.6), t (446) = 6.09, $p < .001$.

Attributions for Health Behavior Change Attempts in General

Standardized item alphas for scores from the Causal Dimension Scale were .61 for locus, .74 for stability, and .60 for controllability, which we

deemed acceptable for 3-item scales. Mean scores were 19.6 for locus (internal), 12.8 for stability (unstable), and 19.0 for controllability (controllable). Two-tailed t-tests revealed significant outcome effects for stability and controllability: Compared to success attributions, failure ascriptions were less stable, *M*s = 15.7 and 10.0, *t* (411) = 9.32, *p* < .001, and less controllable, *M*s = 20.8 and 17.2, *t* (406) = 6.17, *p* < .001.

We also categorized attributions as internal or external, stable or unstable, and controllable or uncontrollable by splitting causal dimension scores at and omitting midpoint values of 15. Table 2 shows the frequency of the eight resultant attribution types separately for success and failure. Internal-unstable-controllable causes were by far the most frequent attributions for failed attempts (*n* = 97); the most frequent attributions for successes were internal-controllable causes that were stable (*n* = 71) or unstable (*n* = 58).

Insert Table 2 about here

Attributions for Attempts to Change Eating, Substance Use, Exercise and Road Safety Habits

Figures 1, 2, and 3 present the results of two-way ANOVAs that crossed outcome (success, failure) with the four most frequently selected categories of change attempts from Table 1: eating (n = 129), substance use (n = 41), exercise (n = 136) and road safety (i.e., wearing seat belts and motorcycle helmets; n = 51).

Insert Figures 1, 2 and 3 about here

Beginning with the analysis for the locus dimension (Figure 1), we found a significant main effect for Health Behavior Type, $F(3,349) = 14.00$, $p < .001$, that was qualified by a significant Outcome X Health Behavior Type interaction, $F(3,349) = 8.26$, $p < .001$. Post hoc probes revealed that for success, road safety attributions were significantly less internal than attributions for eating, substance use and exercise, $F(3, 350) = 18.38$, $p < .001$ (Newman-Keuls test); for failure, substance use attributions were

significantly less internal than those for eating, F (3, 350) =4.12, $p < .007$ (Newman-Keuls test). Viewed from a different perspective, successes were significantly more internal than failures for substance use, F (1, 350) = 7.56, $p < .006$, and exercise, F (1, 350) = 11.48, $p < .001$; failures were more internal than successes for road safety, F (1, 350) =30.70, $p < .001$; and both successes and failures were equally and highy internal for eating.

The ANOVA for the stability dimension (Figure 2) yielded main effects for Outcome (see t-test above, p. 9), F (1, 349) = 58.72, $p < .001$, and Health Behavior Type, F (3,349) = 4.65, $p < .003$. A Newman-Keuls probe of the latter effect showed that attributions for eating, substance use and exercise were equally unstable (Ms = 12.5, 13.6, and 11.7, respectively) and significantly different from the stable attributions for road safety changes (M = 16.7). The Outcome X Health Behavior Type interaction was nonsignificant.

The ANOVA for controllability (Figure 3) revealed a significant main effect for Outcome (see t-test above, p. 9), F (1, 349) = 26.59, $p < .001$, and a nearly significant Outcome X Health Behavior Type interaction, F (3, 349) =

3.75, $p < .012$. Probes of the interaction showed that success attributions were equally and highly controllable, while for failure, road safety ascriptions were significantly more controllable than attributions for the other three health behavior types. In addition, success ascriptions were more controllable than failure attributions for eating, $F(1, 350) = 11.56$, $p < .001$, substance use, $F(1, 350) = 7.97$, $p < .005$, and exercise, $F(1, 350) = 16.25$, $p < .000$; there was no difference for road safety ascriptions.

By way of summary, we can describe the dimensionality of the average attribution in the eight cells of these analyses. All failure attributions and success attributions for eating and exercise changes were internal, unstable and controllable. Successful substance use change was attributed to internal, stable and controllable causes, and successful road safety changes were ascribed to external, stable and controllable causes.

Causal Stability, Change Maintenance, and Expectancies

Most subjects who reported successful health behavior change also said that they were maintaining the change at present (yes = 164, no = 46). Analyses of causal dimension scores showed that maintainers saw the cause

of their successful attempt as stable (M = 16.4) while relapsers rated their initial success as unstable (M = 12.9), t (204) = 3.11, $p < .002$. Of the subjects who described unsuccessful attempts to change health behaviors, the majority noted that they had made subsequent attempts to change (yes = 133, no = 80). Causal dimension analyses revealed that those who had tried again saw the cause of their initial failure as more internal (M = 20.0) than those who had not (M = 18.0), t (202) = -2.61, $p < .01$.

Weiner's (1985) attribution theory of achievement motivation predicts linkages between the stability dimension and expectancies for future outcomes. For successful subjects who had maintained their behavior change, more stable attributions were marginally associated with higher perceived likelihood of continued maintenance, r (161) = .19, $p < .02$, and for unsuccessful subjects who had not atempted another change, stable attributions were correlates of lower expectancies for success in the next three months, r (147) = -.24, $p < .003$. We also found that for all subjects, the longer they sustained their reported health behavior change, the more stable their attribution for that change was, r (413) = .14, $p < .006$, and the

more important they rated their change attempt, the more internal, r (407) = .19, and the more controllable, r (408) =.20, their attribution for the change attempt, $ps < .001$.

Discussion

Undergraduates who reported a failed attempt to change a health behavior overwhelmingly ascribed their setbacks to internal, unstable and controllable causes; those who reported success divided their attributions between internal, controllable causes that were stable or unstable (see Table 2). Overall, our findings are very similar to undergraduates' reports about academic and interpersonal outcomes (Schoeneman et al., 1986) and indicate that our subjects were making attributions that enhance a sense of control over and personal responsibility for the results of their behavior change attempts. Subjects who failed gave explanations dimensionally similar to behavioral self-blame (Anderson, 1983; Janoff-Bulman, 1979). They attributed failure to something they could have done differently, and, by implication, can do differently in the future. Successful subjects were engaging in characterological and behavioral self-congratulations

(Schoeneman et al., 1986), that is, ascribing success to their own abilities and efforts.

A self-serving attributional tendency (Weary Bradley, 1979) appeared for changes involving substance use and exercise: Failure attributions were less internal than success ascriptions. Note, however, that these failure attributions were not, on average, external attributions (see Figure 1). Subjects who failed to change a substance use or exercise habit still saw themselves as the cause of the outcome, but not as strongly as their successful counterparts.

It is interesting to note that there was no hint of a self-serving effect for eating behavior change accounts--successes and failures were both highly internal--and that there was a reversal of this tendency for road safety habits. These findings could reflect the role of cultural beliefs about health behavior change in the attribution process known as the discounting principle (Kelley, 1972). In discounting, a social perceiver minimizes the contribution of a salient cause if other causal explanations are also available. Thus, a person may feel justified in taking less credit for failure

to overcome an addiction or a sedentary lifestyle if there are salient external factors that interfered--the addictive substance or one's busy schedule, for instance. Similarly, external attributions for successful changes in road safety habits may reflect subjects' awareness of popular and legal pressures toward seat belt usage. On the other hand, discounting may not occur in the case of eating change failures if the person is considered to be the sole contributing cause: How much and how well a person eats may be seen as entirely voluntary--less a problem of addiction and more a matter of willpower. These are admittedly ad hoc explanations and should remain tentative until replicated.

Given the preponderance of internal, controllable attributions in this study and the emphasis in health psychology on constructs related to the locus and controllability dimensions (e.g., Thompson, 1981; Wallston & Wallston, 1983), it is easy to lose sight of the stability dimension. Our findings show that perceptions of causal stability are related to expectancy and maintenance: Subjects who saw the cause of their success or failure as due to stable, unvarying causes tended to expect the same outcome in the

future, and those who maintained changes saw the original cause of success as stable. Attributional stability, expectancy and maintenance are clearly important variables in health behavior change, and we urge that future investigators focus on their causal interrelations (cf. Weiner, 1985).

Retrospective reports of attributions for success and failure probably reflect current constructions of reality. Given that the kinds of causal ascriptions that people make have been demonstrated to affect emotion, persistence, and success or failure in achievement settings (Anderson, 1983; Försterling, 1985; Weiner, 1985), the present results suggest that attributional assessment and, possibly, retraining might be useful adjuncts to self-help and treatment-oriented attempts to influence health behavior change.

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Table 1

Number of Successful and Unsuccessful Subjects Reporting and Selecting 23 Health Behaviors

	Reporting		Selecting	
	S	U	S	U
Eating				
reducing fat intake	82	54	3	3
eliminating red meat	25	26	2	3
eating more fiber	49	24	0	1
reducing sugar intake	109	81	15	16
reducing salt intake	100	42	13	3
dieting	81	82	27	38
other	20	11	8	7
Substance Use				
quitting smoking	22	14	7	8
switching to lower tar/nicotine brand	4	7	0	1
reducing alcohol consumption	42	25	5	6
reducing caffeine consumption	44	33	6	8

reducing other substance use	32	18	5	3
Exercise				
jogging regularly	92	147	28	63
walking regularly	71	19	3	2
swimming regularly	48	47	9	9
other	95	39	32	10
Stress Management				
meditating regularly	9	13	2	0
using self-hypnosis regularly	4	12	0	1
using other stress mgmt. tech.	49	34	4	4
General				
dental flossing	80	116	7	22
wearing seat belts	143	74	42	15
wearing motorcycle helmet	34	11	0	1
other	11	8	4	1

Note: S = successful subjects (n = 227), U = unsuccessful subjects (n = 229);

10 subjects reported no change attempts; 9 others did not select.

Table 2

Attribution Types for Successful and Unsuccessful Health Behavior Change

	Successful	Unsuccessful
Internal-stable-controllable	71	9
Internal-unstable-controllable	58	97
Internal-stable-uncontrollable	5	10
Internal-unstable-uncontrollable	8	27
External-stable-controllable	12	3
External-unstable-controllable	9	15
External-stable-uncontrollable	2	1
External-unstable-uncontrollable	10	14

Figure 1

Outcome x Health Behavior Type ANOVA: Locus

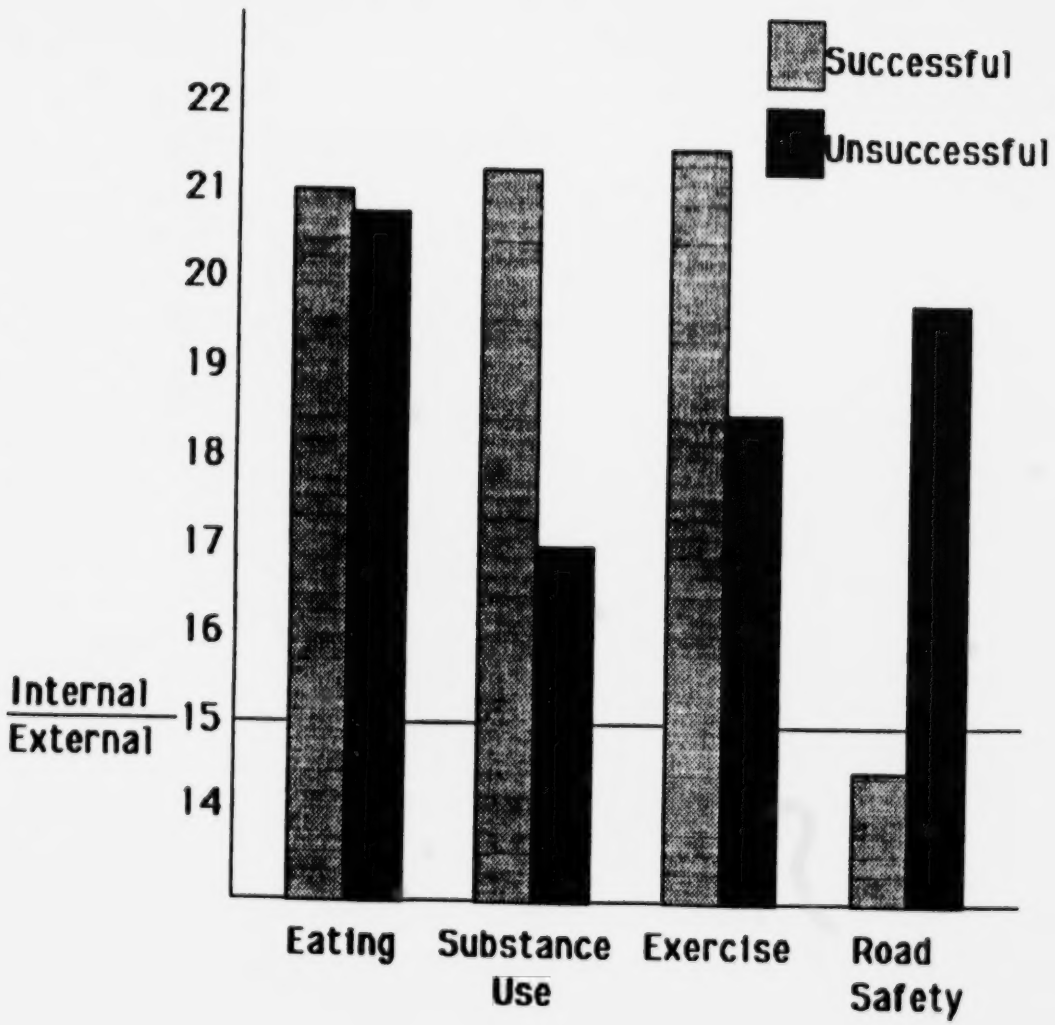

Figure 2

Outcome x Health Behavior Type ANOVA: Stability

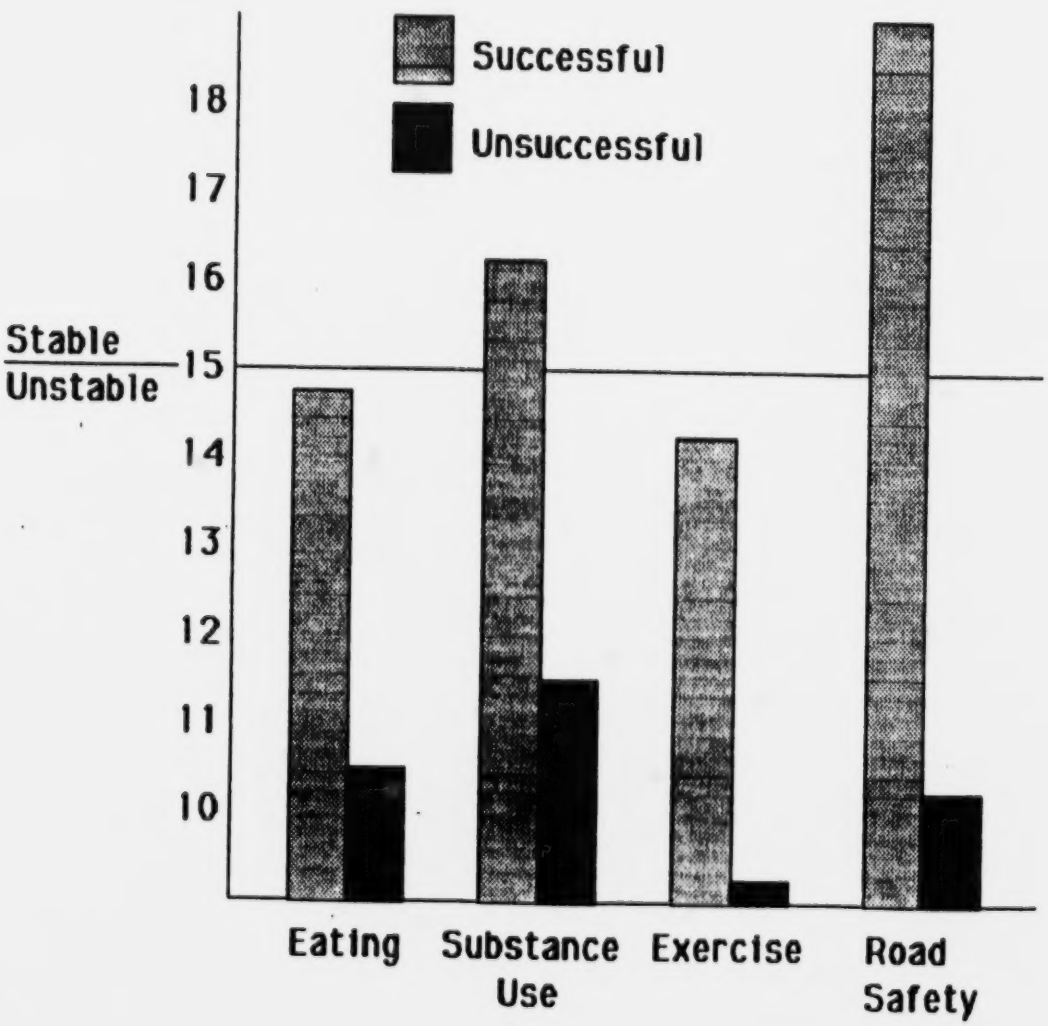

Figure 3

Outcome x Health Behavior Type ANOVA: Controllability